

USSR

IVANOV, N. I., and SKORODUMOV, G. Ye., Gigiyena i Sanitariya, No 11, 1970, pp 98-100

level of diesels in maintenance machines is 113-120 db for nominal loads, 114-118 db for working parts, and the exhaust noise level is 124-130 db. Analysis of measurement results at the maintenance machine work stations showed the noise level to be 90-120 db. The noise spectrum is comprised predominantly of medium- and high-frequency sounds, and the noise exceeds current standards for almost all maintenance machines.

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USSR

UDC 621.317.443

KOVAL'KO, L. M., SKORODUMOV, S. A., STARIKOV, I. V., TRET'YAKOV, L. M.

"Multichannel Analog Magnetic Measuring System"

Tr. VNII elektroizmerit. priborov (Works of the All-Union Scientific Research Institute of Electrical Measurement Instruments), 1971, 7, pp 82-90 (from Referativnyy Zhurnal, Metrologiya i izmeritel'naya tekhnika, No 11, Nov 71, Abstract No 11.32.1752)

Translation: The parameters of a magnetic measuring system that is intended for measuring and recording magnetic field strength at ten points up to 3000 oe where the field varies with a frequency up to 30 Hz are given. The operation and characteristics of the field convertor in the form of a Hall transducer excited by an alternating current are described. Static and dynamic errors in the system are analyzed and methods for reducing them are noted.

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USSR

535.813:666.1.053.65

FURMAN, Sh. A., FOMENKO, P. N., SKORODUMOV, V. N., KATSNEL'SON, L. B.

"Vacuum Application of Multi-Layered Dielectric Coatings on Large Parts"

Optiko-Mekhanicheskaya Promyshlennost', No. 3, 1970, pp 36-41.

Abstract: The vacuum-method application of dielectric materials forming multi-layered coatings on large optical parts up to 2600 mm in diameter, and the usage of a vacuum installation with a chamber diameter of 3250 mm, equipped with a system beneath the cap with a rotating evaporator and photometer, which tests the thickness of the layers during the process of manufacture of the coating are analyzed. Photographs are presented of parts of the system. The investigations showed that the coatings had identical optical characteristics at various points on the surface of the specimen and good operational qualities. For example, mirrors were prepared, consisting of 9 to 13 alternating layers of zinc sulfide and magnesium fluoride or zinc sulfide and strontium fluoride, having $R = 98-99.5\%$ in the area of the main maximum of coefficient of reflection, and minimum and maximum values of R for a fixed wave length differing by not over 0.1% over a 1400 mm diameter surface area. The coatings have high mechanical strength, can be cleaned with a dry cloth, ether, alcohol or a cotton pad wet with water.

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USSR

DZHAFAROV, K. M., NASIROVA, T. I., SKOROKHOD, A. V.

UDC: 519.217

"On the Limit of a Certain Process With Semi-Independent Increments"

Teoriya veroyatnostey i mat. stat. Mezhd. nauch. sb. (Probability Theory and Mathematical Statistics. Interdepartmental Scientific Collection), 1971, vyp. 5, pp 51-56 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V106)

Translation: Let $\{\xi_k^{(n)}\}$ be a sequence of series of independent positive identically distributed random quantities, and let $\{\eta_k^{(n)}\}$ be a sequence of series of independent symmetric identically distributed random quantities. Let us construct the random process

$$\chi_n(t) = \sum_{k=1}^m \eta_k^{(n)}, \text{ if } \sum_{k=1}^m \xi_k^{(n)} < t < \sum_{k=1}^{m+1} \xi_k^{(n)}.$$

The following theorem is proved: If finite-dimensional distributions

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GIKIMAN, I. I., SKOROKHOD, A. V.

"The Theory of Random Processes. Volume 1"

Teoriya Sluchaynykh Protsessov. T. 1 [English Version Above], Moscow, Nauka Press, 1971, 664 pages, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V36K by B. Rogozin).

Translation: Chapter 1. Basic Concepts of the Theory of Probabilities, Chapter 3. Random Functions, Chapter 4. Linear Theory of Random Processes and Chapter 6. Limit Theorems for Random Processes, as the author's note, in the reworked form contained Chapter 3, partially 1 and 4, 5, 9 respectively of an earlier textbook on the theory of random processes written by the same author's, cited here as an introduction (RZhMat, 1966, 7V30K). Some of these changes will be noted below. Chapter 2. Random Sequences Contains the Basic Properties of Sequence of Random Quantities forming Martingales, semi Martingales, Markov chains, walks with independent, identically distributed reticular vector jumps, stable sequences and partial sums of series. Chapter 5, Probability Measures in Functional Spaces, studies the conditions of realization of measures corresponding to random processes in certain functional spaces, formed either from metric or from vector spaces. The relationship between positively defined functionals and measures in

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GIKHMAN, I. I., SKOROKHOD, A. V., Teoriya Sluchaynykh Protsessov, Moscow, Nauka Press, 1971, 664 pages.

Hilbert space H or its suitable expansion is studied. In conclusion, the properties of the characteristic functional and linear and quadratic functionals in H with Gaussian measure are discussed. The results of Chapter 5 are used in Chapter 6 to analyze weak convergence of measures in H , and also to present the characteristic functional of a limitlessly divisible distribution in H , and problems of the theory of addition of independent random quantities with values in Hilbert space H . Chapter 7. Absolute Continuity of Measures Corresponding to Random Processes begins with a summary of the basic properties of the density of one measure relative to another in a measurable space. Then, the properties of the set of permissible shifts of a measure in Hilbert space H are studied, as well as transforms of H , converting measure μ in H to an absolutely continuous measure relative to μ . In conclusion, measures corresponding to stable Gaussian and Markov processes are studied from the point of view of properties of absolute continuity. In Chapter 8. Measurable Functions in Hilbert Spaces the conditions of representability of measurable linear functional in Hilbert space H as the limit of continuous linear functions are studied, similar conditions are presented for measurable linear operators in H , the properties of measurable polynomial functions and

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GIKIMAN, I. I., SKOROKHOD, A. V., Teoriya Sluchaynykh Protsessov, Moscow, Nauka Press, 1971, 664 pages.

mappings in H are studied.

Abstractors Note. The statement of T. 3. b) on page 89 where $p = 1$ concerning convergence in L_1 is in error. The relationship of community of states (defined by the author) on page 116 is the relationship of equivalence only in a set of nonsingular states, not in the set of all states of a chain with denumerable phase space (see page 40 and 46 of RZhMat, 1963, 7V79K). Also, for the convenience of the reader, we point out that in lemma 1 of paragraph 4, Chapter 4 of the introduction, sufficiency of the conditions of the lemma is proven twice rather than proving their necessity and sufficiency while in this edition this mistake is corrected (see lemma 1, paragraph 4, Chapter 3), and, furthermore, T.2 of paragraph 1, Chapter 9 of the introduction, containing errors in the formulation and proof of sufficiency of two conditions have been altered in T.4, paragraph 1, Chapter 6.

USSR

SKOROKHOD, A. V.

"Admissible Translations of Measures in Hilbert Space"

Moscow, Teoriya Veroyatnostey i yeye Primeneniya; October-December, 1970;
pp 577-98

ABSTRACT:

Let μ be a measure on the σ -algebra $\mathcal{B}$ of Borel sets of a separable Hilbert space X . An element $a \in X$ is called an admissible translation of μ if $\mu_a \ll \mu$, where μ_a is the measure obtained from μ under transformation of space $X: S_a x = x + a$. In the paper, the set M_μ of admissible translations of μ and the form of the density $d\mu_a/d\mu$ are investigated.

The class $\mathcal{M}$ of measures for which M_μ contains the linear manifold dense in X is studied. $\mathcal{M}$ is shown to be a convex set. The set $\mathcal{E}$ of extreme points of $\mathcal{M}$ is found and it is proved that all the measures from $\mathcal{M}$ are mixtures of those from $\mathcal{E}$.

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UDC 519.214.519.217

SKOROKHOD, A. V., SLOBODENYUK, N. P.

"Limit Theorems for Random Walks"

Predel'nyye Teoremy Dlya Sluchaynykh Bluzhdaniy [English Version Above], Kiev, 1970, 303 pages (Translated from Referativnyy Zhurnal Kibernetika, No 4, April, 1971, Abstract No 4 V25K by B. Rogozin).

Translation: In chapter 1, "Random Walks," a classification is presented of random walks in an m -dimensional Euclidean space with respect to the properties of the distribution carrier of an individual step of the walk: degenerate and nondegenerate, continuous and discrete, integer lattice and nonlattice, aperiodic. The criteria of returning and nonreturning random walks are studied. In a sampling space corresponding to a random walk, the stable Markov functionals, homogeneous Markov sequences of functionals, right sequences of functionals are defined. In chapter 2, "Limit Theorems for Right Sequences of Functionals," the central limit theorem is presented in integral and local forms with refinements for random walks. Considerable space is given to a presentation of the problem of convergence of stepped processes corresponding to a random walk, to the Wiener process. These results are used to study the limit distribution of a right sequence of homogeneous functionals from a random walk, as well as

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UDC 519.214. 519.217

SKOROKHOD, A. V., SLOBODENYUK, N. P., Predel'nyye Teoremy Dlya Sluchaynykh
Bluzhdaniy, Kiev, 1970, 303 pages.

a certain class of sequences of near-homogeneous functionals. In chapter 3, "Functionals of a Wiener Process," a Dub characterization of a Wiener process in the class of Martingales is presented, and the properties of a strictly Markov-Wiener process are concluded. A stochastic Ito integral is constructed for a Wiener process which is used to construct a class of homogeneous, additive functionals of the Wiener process. Differential equations are presented for certain characteristics of such functionals. The problems of existence and uniqueness of a stochastic differential equation are studied, and a differential equation is concluded for the mathematical expectation of the function of the value of a Wiener process and the values of the solution of a stochastic equation at moment in time t . In chapter 4, "Limit Theorems for Markov Functionals," problems of weak convergence of sequences of functionals $\{\eta_n, \eta\}_{n=1}^{\infty}$ are studied, where $\eta_{n,k} = g_n(\eta_{n,k-1}, S_{k-1}, \xi_k)$, $\eta_{n,0} = 0$, S_k is the position of a walk after the k th step, ξ_k is the value of the k th step, $g(x, y, z)$ is a measurable function of $x, y, z, -\infty < x < \infty, y$ and z are from the phase space of the random walk. As results of the preceding results, limit theorems are presented for a Markov sequence of functionals of a random walk $\eta_{k+1}, \eta_k, G(\eta_k, S_{k-1}, \xi_k)$, where G satisfies the condition V (presented on page 160 in distorted form). Chapter 5, "Limit Theorems for Additive Functionals of Normalized Sums of Independent

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UDC 519.214. 519.217

SKOROKHOD, A. V., SLOBODENYUK, N. P., Predel'nyye Teoremy Dlya Sluchaynykh Bluzhdaniy, Kiev, 1970, 303 pages.

Random Quantities," contains an analysis of functionals of the form

$$\eta_n = \sum_{k=1}^{n-1} f_n \left(\frac{S_k}{\sqrt{n}}, \dots, \frac{S_{k+r}}{\sqrt{n}} \right), n=1, 2, \dots,$$

which is reduced to analysis of functionals of the form

$$\bar{\eta}_n = \sum_{k=1}^n \Phi_n \left(\frac{S_k}{\sqrt{n}} \right), n=1, 2, \dots$$

The limit distributions in this case will be distributions of a certain additive functional of a Wiener process. Strengthening of the conditions for the distribution of an individual jump allows expansion of the class of sequences $\{\eta_n\}_{n=1}^{\infty}$, and $\{\bar{\eta}_n\}_{n=1}^{\infty}$, which are analyzed in limit theorems. The primary content of chapter 6, "Limit Theorems for Additive Functionals of a Random Walk," is made up of results abstracted earlier [RZhMat, 1966, 3V42, 9V26].

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USSR

UDC 519.24

SKOROKHOD, A. V.

"A Note on Unbiased Estimates of the Parameters of Gaussian Distributions in a Hilbert Space"

Teoriya Veroyatnostey i Mat. Statist. Mezhd. Nauch. Sb., [Theory of Probabilities and Mathematical Statistics. Interdepartmental Scientific Collection], 1970, No 3, pp 195-199, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V193 by the author).

Translation: A set of distributions ν_a in Hilbert space X is studied: Parameter a changes in a certain subspace $L \subset X$. It is assumed that ν_a are absolutely continuous relative to ν_0 and

$$\frac{d\nu_a}{d\nu_0}(x) = \exp \{ (a, x) + c(a) \},$$

where $c(a)$ is a function which is analytic in the area of zero. If $L = X$, uniqueness of the unbiased estimate for $\phi(a)$ is proven. If L is the subspace X and $\phi(a)$ has an unbiased estimate, an unbiased estimate is constructed with minimal dispersion. The results produced are applied to sets of Gaussian distributions having fixed correlation operator or a mean value of zero.

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USSR

UDC 519.281

IBRAMKHALILOV, I. Sh., SKOROKHOD, A. V.

"Note on Determining the Average for Gaussian Distributions in Hilbert Space"

Teoriya veroyatnostey i matem. statist. Mezhd. nauchn. sb. (Probability Theory and Mathematical Statistics. Interdepartmental Scientific Collection), 1970, No 1, pp 86-89 (from RZh-Matematika, No 6, Jun 70, Abstract No 6V151)

Translation: Let μ_a be a family of Gaussian distributions in Hilbert space X with an average a variable in the set A and a constant correlation operator B . The existence of a justifiable evaluation for a_2 on the basis of one observation is proved under the assumption that $a = a_1 + a_2$, where $a_1 \in B^{1/2}(X)$, $a_2 \in S(X)$, and S

is an everywhere continuous symmetric operator for which $B^{1/2}(X) \cap S(X) = \{0\}$.

The case in which A is a finite-dimensional space is considered.

Authors abstract

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UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--INVESTIGATION OF THE CRYSTAL PERFECTION BY THE SINGLE CRYSTAL
SPECTROMETER IN THE LAUE DIFFRACTION CASE -U-

AUTHOR-(04)-SKOROKHOD, M.YA., DATSENKO, L.I., GUREYEV, A.N., VASILKOVSKIY,
A.S.

COUNTRY OF INFO--USSR

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CRYSTAL DEFECT, X RAY SPECTRUM, ABSORPTION EDGE, RADIATION INTENSITY

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133703

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITY OF THE INVESTIGATIONS OF THE CRYSTAL PERFECTION BY A SINGLE CRYSTAL SPECTROMETER WAS SHOWN. THE DIFFERENT FACTORS WHICH CAN INFLUENCE THE MEASURED INTENSITIES ARE DISCUSSED. A GOOD AGREEMENT BETWEEN THE INTEGRAL FACTORS OF THE ANOMALOUS TRANSMISSION π SUBI MEASURED BY A SINGLE AND DOUBLE CRYSTAL SPECTROMETER WAS OBTAINED. THESE MEASUREMENTS WERE CARRIED OUT ON THE CHARACTERISTIC AND CONTINUOUS X RAY SPECTRA. THE VALUES χ SUBIH1 AND χ SUBIH2 WHICH ARE RELATED TO THE SHORT AND LONG WAVE REGIONS OF K EDGE OF ABSORPTION RESPECTIVELY, WERE FOUND FROM THE LOGARITHM DEPENDENCE OF THE INTENSITY JUMPS UPON THE CRYSTAL THICKNESS. THESE VALUES ARE IN GOOD AGREEMENT WITH THE DATA OBTAINED FROM THE MEASUREMENTS π SUBI MADE BY THE DOUBLE CRYSTAL SPECTROMETER.

UNCLASSIFIED

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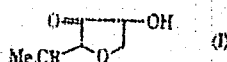
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CHEMICAL ABST.

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AP0079

99850y Acid-base equilibriums of tetrahydroaminoethoxy-
furanones in water-alcohol solutions. Gruchanov, B. G.;
Skorokhod, O. R.; Tishchenko, I. G. (Beloruss. Gos. Univ.,
Leningrad, Minsk, USSR). *Zh. Obshch. Khim.* 1970, 40(1), 171-6
(Russ). Acid-base equil. was studied of I (R = piperidino,
NMe₂, or NEt₂) by following the changes in absorption spectra
of I at pH 1.78-6.74. All 8 possible structural forms of I take
part in the equil. involving H⁺ transfers and tabulation was
made for I at various pH in terms of distribution of the co-



present forms under the acid-base equil. conditions. The values
of the estd. equil. consts. for these forms increase in order
C₃H₁₁N, Me₂N, Et₂N and were tabulated for pH 2-11.

G. M. Kosolapoff

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USSR

UDC 669.15'26'74'295:620.193.17

NIZHEL'SKIY, P. YE., and SKOROKHOD, T. S., Kurgan Machine Building Institute

"Effect of Titanium on the Properties of Heat-Resistant Cr-Mn Steel"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya, No 6,
June 73, pp 104-105

Abstract: The effect of titanium on the scaling resistance, structure, and mechanical properties of an austenitic steel containing (in %): 0.4 C, 16 Cr, 13 Mn and 1.5 Si was investigated. It was established that titanium content of 0 to 1.5% increases the scaling resistance of the steel, lowers austenite stability, increases hardness, and diminishes impact strength. Titanium, being a ferrite-forming element, promotes the gamma-alpha transformation. 2 figures, 3 bibliographic references.

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USSR

SKOROKHOD, V. V.

Reologicheskiye osnovy teorii spekaniya (The Rheological Bases of the Theory of Agglomeration), Kiev, Naukova Dumka, 1972, 148 pp

Translation of Introduction: Agglomeration is one of the most important technological processes of powder metallurgy. A rational theory of agglomeration should foretell ways of production of a given structure of an agglomerated body in order to ensure the physicomachanical or physicochemical properties established by this structure.

From the point of view of physical chemistry of solid bodies, agglomeration is a complex, multistaged spontaneous kinetic process of bringing a disperse system, such as a body compressed from powder, toward equilibrium. The reasons for divergence in a powder conglomerate are varied: concentration heterogeneity, the presence of microdistortions of the crystal lattice, a developed system of internucleic boundaries, a network of three-dimensional and two-dimensional macrodefects -- pores and imperfect contacts between divisions. The last reason, which is connected with the presence of surplus free surface energy, is the main moving force of agglomeration. Therefore, we can also define agglomeration as a kinetic process of liberation of a

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USSR

SKOROKHOD, V. V., Reologicheskiye osnovy teorii spevaniya, Kiev, Naukova Dumka, 1972, 148 pp

powder system from unequal macrodefects. Other processes, striving to bring the system close to equilibrium, take place in parallel, but do not relate specifically to agglomeration. The variety of macrodefects in the unagglomerated porous body also influences the variety of the mechanisms of their "healing." The most important molecular-kinetic processes for agglomeration are: chemical reactions on the surfaces and boundaries of components, surface and volume self-diffusion, thermally activated dislocational processes. Although a complete qualitative theory of agglomeration is still far from completion, quantitative concepts on a whole series of questions have already been completely formulated. In recent years there have appeared important experimental and theoretical works in the field of agglomeration, making possible the understanding of its mechanism and qualitative descriptions of the kinetics of property changes of powder bodies in the agglomeration process.

The fundamental works of Ya. I. Frenkel', B. I. Pines, K. Kherring, G. Kuchinskiy, I. M. Fedorchenko, Ya. Ye. Geguzin, and I. M. Lifshits describe the solid-phase agglomeration process of metallic bodies, including powder ones, as one of the manifestations of self-diffusion. The contemporary

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SKOROKHOD, V. V., Reologicheskiye osnovy teorii spekaniya, Kiev, Naukova Dumka, 1972, 148 pp

status of the theory of agglomeration as a result of processes of diffusion of vacancies and of diffusion-viscous flow is presented in the works of B. Ya. Pines and Ya. Ye. Geguzin [1-3]. The greatest accomplishment in this direction is the cycle of works by I. M. Lifshits and his school. In them is developed the general theory of the processes of diffusion agglomeration, considering the coalescing of pores; of the diffusion-viscous flow of polycrystals; and of dislocational-diffusion flow.

Nonetheless, some practically important experimental data on the kinetics of agglomeration come into contradiction with the theory of agglomeration which is based on the concept of the predominant role of self-diffusion processes. The necessity of theoretical consideration of these experimental facts, and also of the creation of a theory of activation of the agglomeration process, bears witness to the expediency of further perfection of theoretical concepts about agglomeration. This perfection can be achieved by a systematic calculation of the role of dislocational processes in the mechanism and kinetics of agglomeration, and also by greater precision in qualitative evaluations, based on a stricter macroscopic theory of agglomeration. The present book

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SKOROKHOD, V. V., Reologicheskiye osnovy teorii spekaniya, Kiev, Naukova Dumka, 1972, 148 pp

is dedicated to an attempt at such a perfecting of agglomeration theory and the explaining of the role of dislocational processes in the mechanism of deformation of porous metals during agglomeration.

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SKOROKHOD, V. V., Reologicheskiye osnovy teorii spekaniya, Kiev, Naukova Dumka, 1972, 148 pp

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SKOROKHOD, V. V., Reologicheskiye osnovy teorii spekaniya, Kiev, Naukova Dumka, 1972, 148 pp

2. Activization of Dislocational Flow in Diffusion or
Chemical Interaction

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USSR

UDC: 621.762.5.001

DENISENKO, E. T., ~~SKOROKHOD, V. V.~~, Institute of Problems of Material Science,
Academy of Sciences, UkSSR

"Creep of Nickel Powder in Oxidizing and Neutral Media"

Kiev, Poroshkovaya Metallurgiya, No 4, 1972, pp 83-87.

Abstract: The kinetics of creep and the effect of preliminary oxidation on creep are studied by compression of sintered powdered nickel briquettes in air and in argon. It is demonstrated that preliminary oxidation decreases the deformation rate. Oxidation under load activates dislocation flow in the early stages of the process. The relationship between volumetric shrinkage during oxidation and during creep in air indicates a dislocation mechanism of deformation in both cases. However, the seeming invariance of total shrinkage may be only apparent for a number of reasons, including a possible difference in weight gain between free oxidation and oxidation under load, simultaneous development during oxidation of processes activating and inhibiting deformation, or possible localization of dislocation creep resulting from the chemical reaction in the thin surface layer of the particles. All of these problems must be studied further before final conclusions can be drawn.

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USSR

UDC: 621.762.27

KHRIYENKO, A. F., SKOROKHOD, V. V., and PANICHKINA, V. V., Institute of Problems of the Material Science, Academy of Sciences Ukrainian SSR

"Hydrogen Effect on Certain Properties of Electrolytic Nickel Films"

Kiev, Poroshkovaya metallurgiya, No 12, Dec 71, pp 17-20

Abstract: This study concerns the effect of the hydrogen dissolved in nickel on the defectiveness of crystal structures, recovery processes, and pre-crystallization changes in the fine crystalline structure of nickel powders. The test specimens included: electrolytic nickel powder, autoclave nickel, and electrolytic nickel foil. The study covered the effects of electrolytic conditions and the pH of the solutions on the amount of hydrogen dissolved in nickel, the kinetics of hydrogen liberation, and changes in conductivity and hardness with annealing temperature. An increase in hydrogen concentration appears to reduce the energy of formation of packing defects and increase both the resistivity and hardness (HV). The increase in resistivity is attributed either to the formation of proton gas clouds (in the nickel lattice) inhibiting the movement of

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KHRIYENKO, A. F., et al, Poroshkovaya metallurgiya, No 12, Dec 71, pp 17-20

conduction electrons or to the initiation of a new phase with conductance similar to that of pure nickel. It is suggested that dissolved hydrogen may significantly affect certain physical properties of powders and foils at temperatures preceding its complete liberation. (4 illustrations, 9 bibliographic references).

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Powder Metallurgy

USSR

UDC 621.762.5.001

SKOROKHOV, V. V., and YURCHENKO, YU. F., Institute of Problems of Material Science, Academy of Sciences UkrSSR, Institute of Metal Physics, Academy of Sciences UkrSSR

"Calorimetric Studies of Processes Occurring in Nickel Powders During Heating"

Poroshkovaya Metallurgiya, No 4(100), Apr 71, pp 27-31

Abstract: A precision differential vacuum calorimeter was used in an investigation of reactions occurring in nickel powders during heating. Electrolytic and carbonyl nickel powders as well as nickel filings were studied by x-ray methods. Calorimetric analysis showed a significant difference in the liberation of heat characteristics of nickel filings and the nickel powders.

On heating electrolytic and carbonyl nickel powders, two sharp heat liberation maxima were observed. The first is related to gas desorption and the second to recrystallization processes. The first maximum corresponds closely to the temperature interval in which there has been observed an increase in the lattice parameters of electrolytic nickel and an annealing of packing defects. In this same region there has been noted a decrease in the size of the microdeformations.

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ISSR

SKOROKHOD, V. V., and YURCHENKO, YU. F., et al., Poroshkovaya Metallurgiya, No 4(100), Apr 71, pp 27-31

Electrolytic nickel powder was found to contain 0.008 wt% hydrogen and a total of 0.3 wt% oxygen and nitrogen. Carbonyl nickel was found to contain 0.004 wt% hydrogen and 0.07 wt% oxygen and nitrogen. Tests carried out at 250, 350, and 500°C in vacuum for one hour to determine the amount of hydrogen showed that hydrogen content decreased monotonically with increasing temperature and did not exceed 0.001 wt% after reaching 500°C.

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USSR

UDC 621.762.27

SKOROKHOD, V. V., KHRIYENKO, A. F., SOLONIN, YU. M., and KHANDROS, L. L.,
Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Study of Packing Defects in Electrolytic Nickel Powder"

Kiev, Poroshkovaya Metallurgiya, No. 10, Oct 70, pp 9-13

Abstract: A study is presented of the kinetics of isothermal annealing of packing defects in electrolytic nickel powder at 141 and 191°C. The probability of the emergence of packing defects was calculated from the anisotropy of blocks for directions [111] and [100]. It is suggested that the hydrogen present in the powder in amounts of 0.0075 to 0.0035% is responsible for the decrease in defect formation energy. On dissolution in nickel, hydrogen becomes ionized; the released electrons are captured by the s-d band. Since hydrogen increased the number of s-d electrons per atom, it is bound to decrease the packing defect energy. Annealing

USSR

SKOROKHOD, V. V., et al, Poroshkovaya Metallurgiya, No. 10, Oct 70, pp 9-13

at 200--300°C markedly reduces the concentration of packing defects without an appreciable decrease in dislocation density. Mathematical treatment of the relationship between the effective energy of packing defects and temperature at various mean hydrogen concentrations shows that with annealing temperatures above 141°C, the hydrogen concentration on the packing defect will approach equilibrium at reasonably low annealing durations.

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USSR

UDC 621.762.5.001

SKOROKHOD, V. V.

"Theory of Solid-Phase Sintering of Cermets Products"

Sovrem. probl. poroshk. metallurgii -- V sb. (Modern Problems of Powder Metallurgy -- collection of works), Kiev, Naukova Dumka Press, 1970, pp 81-91 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G429)

Translation: A survey of the basic sintering series based on the papers of some Soviet authors is presented. Problems of the mechanism of activation of the sintering process are investigated, and the characteristics of the most important factors affecting activation of the sintering process are presented. The bibliography has 52 entries.

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USSR

UDC 621.762.2

SKOROKHOD, V. V.

"Methods of Preparing Powders and Their Properties"

Sovrem. probl. poroshk. metallurgii -- V sb. (Modern Problems of Powder Metallurgy -- collection of works), Kiev, Naukova Dumka Press, 1970, pp 13-21 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G433)

Translation: A brief description of the basic methods of industrial production of powders, their deficiencies, and advantages is presented: reduction from oxides (gaseous reducers and metallothermal reduction), electrolysis of aqueous salt solutions, atomizing melts, dissociation of carbonyls, reduction of H_2 from aqueous salt solutions in autoclaves. A description of the technological methods of obtaining Cu, Ni, and Cu-Ni alloy powders is presented. Their chemical and granulometric compositions, physico-mechanical properties, and the structure of disperse metal powders are presented. There are 7 tables and a 13-entry bibliography. [Institute of Applied Mineralogy of the Ukrainian SSR Academy of Sciences].

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USSR

UDC 539.374

NYASHIN, YU. I., ~~SKOROKHODOV, A. N.~~, TARNOVSKIY, I. YA., KALASHINKOV, YU. V.,
BOYKO, B. M., BAZHUTIN, V. V.

"Algorithm for Calculating Distortion and Twisting Moments in Rolling
Wide-Band Beams on a Universal Mill"

Tr. Ural'skogo politekhn. in-ta (Works of Ural'sk Polytechnical Institute),
1969, Collection 176, pp 117-122 (from RZh-Mekhanika, No 5, May 70,
Abstract No 5V384)

Translation: The deformation process in rolling I-beams on a universal mill
is studied for a rigid-plastic medium using the Jourdain variational prin-
ciple. A computational algorithm is derived and theoretical and experi-
mental data are compared. Abstract.

USSR

UDC 539.374

S
NYASHIN, YU. I., SKOROKHODOV, A. N., KALASHNIKOV, YU. V., TARNOVSKIY, I. YA.

"Algorithm for Calculating the Temperature Field in Hot Rolling"

Tr. Ural'skogo politekhn. in-ta (Works of Ural'sk Polytechnical Institute),
1969, Collection 176, pp 179-185 (from RZh-Mekhanika, No 5, May 70,
Abstract No 5V383)

[No abstract]

USSR

S

UDC 539.374

ILYUKOVICH, B. M., MASHINSKIY, V. V., TARNOVSKIY, I. YA., SKOROKHODOV, A. N.

"The Mechanics of Rolling L-Shaped Angles to Accurate Dimensions"

Tr. Ural'skogo politekhn. in-ta (Works of Ural'sk Polytechnical Institute),
1969, Collection 176, pp 112-116 (from RZh-Mekhanika, No 5, May 70,
Abstract No 5V386)

[No abstract]

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USSR

S

UDC 539.374

ILYUKOVICH, B. M., MASHINSKIY, V. V., TARNOVSKIY, I. YA., SKOROKHODOV, A. N.

"The Mechanics of the Rolling of L-Shaped Corners in Rough Developed Dimensions"

Tr. Ural'skogo politekhn. in-ta (Works of Ural'sk Polytechnical Institute),
1969, Collection 176, pp 107-111 (from RZh-Mekhanika, No 5, May 70,
Abstract No 5V385)

[No abstract]

1/1

USSR

SKOROKHODOV, O. V., YAKOVLEV, A. V.

UDC 8.74

"Recognition of a Class of Objects by Deterministic Fields of Indicators"

V sb. Avtomat. upr. i vychisl. tekhn. (Automatic Control and Computer Technology -- Collection of Works), No 10, Moscow, "Mashinostroyeniye," 1972, pp 176-189 (from RZh-Matematika, No 9, Sep 72, Abstract No 9V672)

Translation: Certain problems in the recognition of radar objects using the method of deterministic fields of indicators are discussed. Recognition is performed on the basis of constructing regions belonging to different objects on two-dimensional fields of indicators. The informative indicators are the amplitudes and phases of the pulse characteristics under the assumption that noises are absent. A recognition technique and algorithm is proposed and a deterministic logic automaton is described. Quantitative evaluations of the informative capacity of certain indicators which can be used in solving pattern recognition problems are given. Authors abstract.

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USSR

UDC 8.74

SKOROKHODOV, O. V., YAKOVLEV, A. V.

"Recognition of a Class of Objects by the Method of Deterministic Fields of Attributes"

V sb. Avtomat. upr. i vychisl. tekhn. (Automatic Control and Computer Engineering -- collection of works), Vyp. 10, Moscow, Mashinostroyeniye Press, 1972, pp 176-189 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V672)

Translation: In this paper a study was made of some of the problems of recognizing radar objects by the method of deterministic fields of attributes. Recognition is carried out on the basis of the construction of the regions belonging to various objects in the two-dimensional fields of attributes. The informative attributes are the amplitudes and phases of the pulse characteristics under the assumption that noise is absent.

A procedure and recognition algorithm are proposed. The schematic is presented for a deterministic logical automaton. Qualitative estimates of the informativeness of certain attributes which can be used when solving the pattern recognition problem are presented.

1/1

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--DISTANT ISCHEMIC LESIONS OF THE SPINAL CORD IN CLOSED INJURIES OF
THE THORACIC AND LUMBAR REGIONS OF THE SPINE --U-
AUTHOR--(02)--GREBENYUK, V.I., SKOROMETS, A.A.
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 142-144
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--SPINAL CORD, INJURY, BLOOD CIRCULATION, SYNDROME
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/1700 STEP NO--UR/0475/70/000/004/0142/0144
CIRC ACCESSION NO--AP0129070
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0129070

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSING 44 PATIENTS WITH CLOSED INJURIES OF THE THORACIC AND LUMBAR REGION OF THE SPINE THE AUTHOR SINGLED OUT SEVERAL CLINICAL SYNDROMES OF ISCHEMIC SPINAL CORD INVOLVEMENT: INVOLVEMENT OF THE LOWER HALF OF THE SPINAL CORD, INVOLVEMENT OF THE THORACIC SEGMENTS, INVOLVEMENT OF INTUMESCENTIA LUMBALIS, INVOLVEMENT OF THE EPICONUS AND CONUS, INVOLVEMENT OF THE CAUDA EQUINA. A MAJOR ROLE IN THE PATHOGENESIS OF DISTANT AFFECTIONS OF THE SPINAL IS PLAYED BY BOTH ARTERIAL AND VENOUS ISCHEMIA. FACILITY: PERVOGO LENINGRADSKOGO MEDITSINSKOGO INSTITUTA IM. AKAD. I. P. PAVLOVA.

UNCLASSIFIED

USSR

UDC 612.812.2

KRAUZ, V. A., SOROKOUMOV, V. A., and SKOROMETS, A. A., Institute of Experimental Medicine, Academy of Medical Sciences USSR, and First Medical Institute imeni I. P. Pavlov, Leningrad

"Effect of Ethimizole on Short-Term Memory and Mental Performance"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti, No 5, 1972, pp 907-911

Abstract: Experiments on dogs showed that ethimizole, an iminazole dicarboxylic acid derivative, significantly improved short-term memory compared with the control. The degree of improvement varied with the amount of previous training. The less trained the memory of an animal, the more pronounced the stimulatory effect of ethimizole. The drug also improved the ability of human subjects with a poor memory to recall numbers and words, but it had no effect of those with a high capacity for quick memorization. The stimulating action of ethimizole is attributed to its facilitating the conduction of excitation in the synapses, possibly because of the increased accumulation of acetylcholine.

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SKOROPAD, R.N.

SPAS 52005
6.73

11-4. PYROCHEMICAL ANALYSIS OF THE IN-P-1₂ SYSTEM AND THE MORPHOLOGY OF
INDIUM PHOSPHIDE CRYSTALS GROWN BY THE CHEMICAL GAS TRANSPORT REACTION METHOD
(Article by A. V. Sandulova, A. K. Zakharov, Ye. D. Dolgov, S. Nevskiy, R. N.
Skoropad, L'vov; Novosibirsk, III Simpozium po Preobrazheniyam i
Poluprovodnikovym Kristallam, Krasnodar, 12-17 June, 1972, p. 31)

In this paper the authors have investigated the possibility of chemical
reactions which can participate in the In-P-1₂ system. Studies were made of the basic
transport and crystallization of indium phosphide (InP).
The temperature dependence of the equilibrium constants of the postulated
reactions in the temperature range of 600°K to 1200°K was calculated, and a
physicochemical analysis was made of these reactions.

On the basis of the calculations, filamentary and platy low crystals
grown which reached a length of 2-8 mm and 4-6 mm in cross section. The
external faces of such crystals are perfect, rather smooth. The

It was established that the low crystals grow in three basic crystallographic
directions [111], [110], [111].

USSR

UDC 615.471:615.849.5

DENISENKO, O. N., IL'ICHEV, B. V., KOZLOV, V. A., SKOROPAD, Yu. D.,
STROYKOV, M. Ye.

"Fifty-Channel Dosimeter With Transistorized Detectors"

Moscow, Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

Translation: Department of Roentology and Radiology (Chief-Academician of
Academy of Medical Sciences, USSR, G. A. Zedgenidze) of the Scientific-
Technical Institute of Medical Radiology of the Academy of Medical Sciences,
USSR, Obninsk.

Growth of means for measurement of dose fields lead to the creation of
automatic isodoseographs of the following or scanning type (V. A. Volkov, Kh.
Dzhons; E. G. Bochkarev and V. A. Mikhaylov). In essence such an isodoseo-
graph is a dosimeter, the movement and recording of readings of which take
place automatically. The principal disadvantages of a device of this type
is the low operativeness, the impossibility of measurements in solid phantoms,
and also with the use of mobile methods of irradiation provide a way so that
the isodosograph pertains to the class of single-channel recording systems.

Transition to multichannel methods of recording because of the basic
trend in measuring techniques makes it possible to eliminate the disadvantages
mentioned above.

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

In the literature a 10-channel isodoseograph with ionization chambers (Birkner) is described; however, the small number of detectors requires additional transfer of them which for practical purposes reduces the principal advantages of a multichannel system to nothing.

A fifty-channel system of recording a dose field with megavolt radiation energy was developed by us.

The over-all block diagram of the multichannel dosimeter shown in Fig. 1 is constructed on the principle of time sharing of the channels. The commutator K_1 , which is triggered by the generator G, successively connects the detectors D_1 -- D_{50} to the input of the d-c amplifier (UPT). The amplified signal passes by way of commutator K_2 , operating in step with the commutator K_1 , through the correcting network K_{Ts1} -- K_{Ts50} intended for balancing the sensitivity of the detectors, and is admitted into the recording device. The recording device is a digital voltmeter TsV, the frequency of the measurement cycle of which is also determined by the generator G. The response of the digital voltmeter can be recorded visually, photographically or with the aid of the digital-printing device TsU. During the comparative representation of the results of the measurements, the signal J_0 of the reference detector is

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

established with the aid of a resistor R, 100 percent equal to 100 units (mv). The sensitivities J_n of the other detectors automatically represent the ratio J_n/J_0 expressed in percentages.

Semiconductor silicon phototransducers with a p-n junction are used as radiation detectors, the electrical and dosimetric character of which are well known (Yu. B. Mandel'tsvayg; A. N. Krongauze and coauthors; F. I. Glezin and coauthors). For their use in a multichannel system it is necessary that the spread of the basic parameters -- sensitivity, energy dependence, internal resistance -- be a minimum. The initial choice of detectors with dimensions of $10 \times 10 \times 1$ mm from a batch of 300 pieces was made on the basis of measurements with the aid of an avometer [ampere-volt-ohmmeter] of the values of the forward and back resistances. As investigations showed, for maintenance of zero of an amplifier operating in a compensating regime it is necessary that the magnitude R_{back} be not less than 50--60 kOhm.

After this, the energy dependence was studied of 10 detectors arbitrarily selected from a batch of detectors in the 13-120 e.v. range.

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

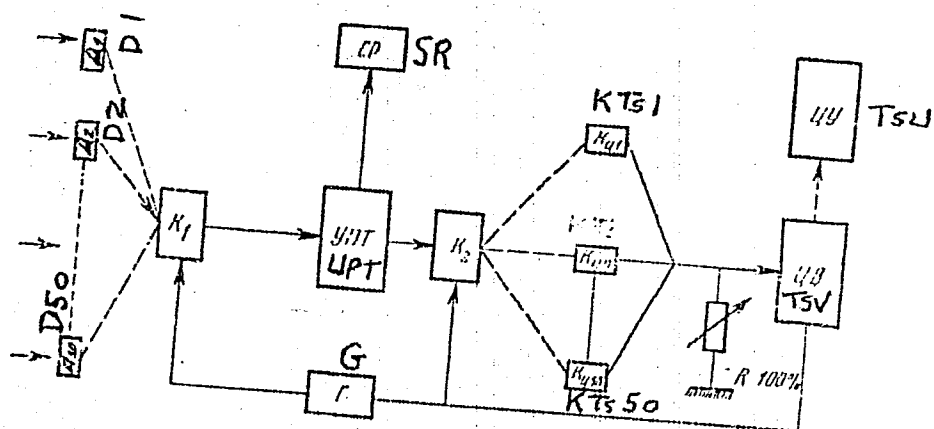


Fig. 1. Block Diagram Of Multichannel Dosimeter

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The results obtained show that the maximum spread does not exceed 20-30 percent. It practically did not affect the attenuation curves of Co60 measured with the aid of these detectors. The attenuation curves coincided with attenuation curves measured by the scintillation detector of the NS-200/B dosimeter with a precision on the order of 3 percent, which corresponds to data obtained in the work of V. K. Lyapidevskiy. The geometry of the detector in the form of a plate with dimensions of 10 x 10 x 1 mm is not optimum, which appears in the dependence of the sensitivity on the angle of incidence of the quanta emission. In order to improve the geometry, the plates were divided into two equal halves which then were superimposed one on the other (sensitive side inward) so that the over-all dimensions of the detector became equal to 10 x 5 x 2 mm. Electrically, these parts of the detector were connected in parallel, thanks to which the electrical parameters and the sensitivity of the new detector correspond to the original (up to cutting). The dependence of the response on the angle of incidence of the γ quanta during this did not exceed 5 percent (the analogous magnitude for the original plate was 25 percent). The differential distribution of sensitivity is shown in Fig. 2 a and the integral in Fig. 2 b.

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

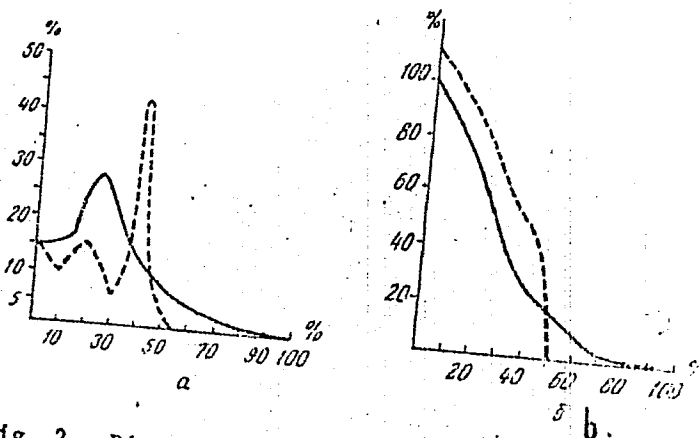


Fig. 2. Distribution of Detectors With Respect to Sensitivity
 a--Differential; b--Integral. Solid line up to "cutting of the detectors; dotted line, after.

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

Co60 radiation was used in determining the sensitivity. The relative sensitivity (the response of the most sensitive detector is taken as equal to 100) is plotted on the X axis and the relative number of detectors (the over-all number of detectors in a batch corresponds to 100) on the Y axis.

All detectors were equalized to a relative sensitivity of 40 percent. It is clear that during this it is possible to utilize those detectors, the relative sensitivity of which exceeds 40 percent. It is possible mechanically to reduce the sensitivity (e.g., by a decrease of the dimensions of the detector) and by electrical means. We used the latter method, for which correcting networks were introduced into the electrical circuit [tsep'] for the signals after amplification, with the aid of which it was possible smoothly to change the sensitivity to the necessary magnitude. As seen from Fig. 2 b, the relative number of detectors which were used during this did not exceed 25 percent (for a relative sensitivity of 40 percent). In order to increase the output of the detectors in a batch which are used, and the preliminary (up to electrical correction) equalizing of their sensitivity, the process described above of improving the geometry of the detectors was used. To accomplish this, the halves of detectors with a relative sensitivity greater than 40 percent were connected with halves of detectors with a relative sensitivity less than

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

40 percent, so that the sum of their relative sensitivities would amount to 40 percent. The corresponding distributions after these operations are shown in the dotted lines of Figs. 2 a and 2 b. It is seen that the output of detectors which are used increased up to 55 percent. Furthermore, the spread of the detectors with respect to sensitivity (see Fig. 2 a) was substantially decreased, which to a considerable degree contributed to a simplification of the electrical circuits for sensitivity control. After electrical connection the final spread of 50 selected detectors did not exceed 2 percent.

The detectors were placed at the ends of rods (at a depth of 3 mm) with a length of 30 cm and a diameter of 1 cm, made of tissue-equivalent mass M-3. Conductors with a cross section of 0.14 mm passed within the rods. The number of the detector was placed on the lateral face of the rod. For convenience in exploitation, all the detectors were united in groups of 10 pieces each, which are connected via releasable connections to the block of the K1 commutator, distributed in the immediate vicinity of the phantom.

The principal circuit and the external appearance of the multichannel dosimeter are shown in Figs. 3 and 4.

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, PP 40-45

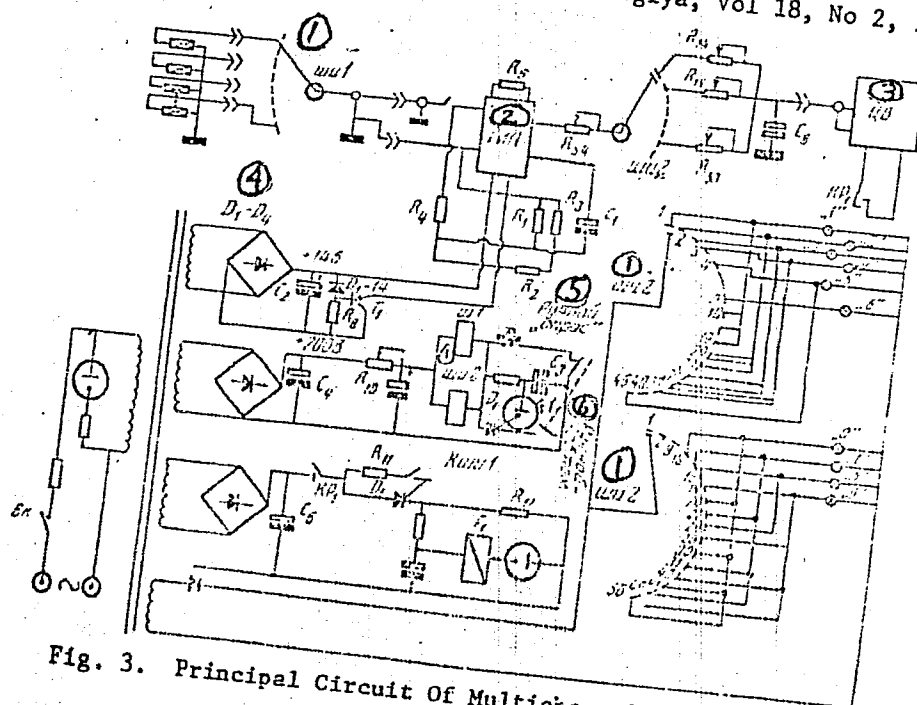


Fig. 3. Principal Circuit Of Multichannel Dosimeter

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Key to Fig. 3.

1. (SH)-1, -2 Step-by-step switch
2. Galvanometric induction converter
3. Digital voltmeter
4. Detectors
5. Manual interrogation
6. Manual-automatic

ShI-50/4 step-by-step switches were used as K_1 and K_2 commutators. Their triggering was accomplished by the thyristorized generator L_1 , operating in a regime of energy pileup in the interval between pulses. The possibility is provided for of manual or automatic interrogation with frequency control. After the commutator K_1 the signal enters a Type I-310 d-c amplifier which contains a Type 131M/3 galvanometric induction converter (GIP) an a-c amplifier, and a synchronous demodulator. The input resistance of the GIP does not exceed 1-2 ohm which makes it possible to assure realization of a short-circuit regime. From the GIP the signal proceeds via the commutator K_2 to the correcting network which contains the variable resistors $R_{14}-R_{53}$. Resistor R_{54} (100 10/15

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percent R) is used during relative measurements. For an indication of the number of a detector being questioned, indicator digital panels were used, connected with the aid of the ShI-50/4 contacts, and giving in digital form the number of the detector being questioned. The results of the measurements were recorded with the aid of a Type ShCh1411M digital voltmeter, with which an output to digital printing in the code 2-4-2-1 was provided.

Structurally the multichannel dosimeter is made in the form of the block of detectors, the block of the commutator K₁, a principal block in which are located the commutator K₂, the d-c amplifier (UPT), the correcting network, and the control general G, the power supply block, and the digital voltmeter block.

The commutator K₁ is located in the immediate vicinity of the phantom. The signals are transmitted with the aid of a coaxial cable approximately 20 m long. For convenience, in the principal block there was a supplementary pointer-type recorder (SR) (See Fig. 1) of the power of the radiation dose, connected to the output of the GIP.

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

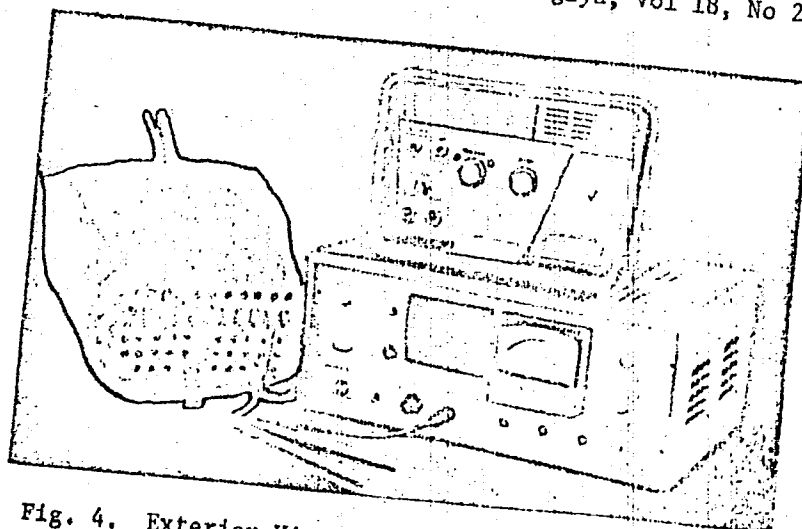


Fig. 4. Exterior View Of Multichannel Dosimeter

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

The multichannel dosimeter can be used with any phantom, both liquid and solid. In our investigations a dosimetric phantom of a human thorax was used, prepared on the basis of this part of the skeleton fixed in Formalin. The thorax wall, the heart, liver, and diaphragm are fulfilled from the M-3 phantom mass (M. Tyubiana and coauthor). The trachea and esophagus are simulated with vinyl chloride tubes. The spinal column canal is a natural cavity with vinyl chloride tubes lead into it. In place of the arrangement of the lungs, a cavity is provided, with the anatomy and dimensions of the skeleton taken into account. The cavity can be filled with various tissue-like materials and ionizing radiation detectors can be introduced into it. On the side of the distal end of the phantom there are 50 cylindrical channels 1 cm in diameter in which rods with detectors can be placed. The direction of the channels coincides with the longitudinal axis of the phantom.

Thus the dosimetric phantom of a human thorax makes it possible wholly or partially to vary the composition of the substance filling the "lungs" cavity and to place detectors at any point of the phantom, including the "esophagus," "trachea," and the "spinal column channel."

Measurements performed on this phantom with the aid of the multichannel dosimeter showed that introduction of detectors into the phantom did not affect the dose field within the limits of error of the measurements.

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With the electronic stages taken into consideration the over-all error of measurements did not exceed 5 percent.

Conclusions A 50-channel dosimeter with semiconductor detectors of the "solar cell" type was developed. The principle of time sharing of the detector communication channels with the recording device is placed at the basis of the block diagram. The multichannel dosimeter makes it possible to conduct measurements on any phantom with the application of static methods of irradiation. It would be possible to use a block diagram with parallel "interrogation" of detectors for recording of the dose field with mobile methods of irradiation; however, for a large number of channels its creation encounters considerable difficulties. In spite of this it is possible to stress that transition to multichannel methods of recording dose fields is very promising and the development in question is only the first step in this direction.

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14/15

USSR

DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

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Received 16 December 1971

15/15

1/2 012
TITLE--PHANTOM MATERIAL FROM PARAFFIN AND POLYETHYLENE -U-
AUTHOR--SKOROPAD, YU.D.
COUNTRY OF INFO--USSR
SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 3, PP 71-75
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PARAFFIN WAX, RADIATION MEASUREMENT, RADIOLOGY, POLYETHYLENE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1985/1705
CIRC ACCESSION NO--AP0101760
STEP NO--UR/0241/70/015/003/0071/0075
UNCLASSIFIED

2/2

012

CIRC ACCESSION NO--AP0101760

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE PAPER SETS FORTH THE RESULTS OF EVALUATION OF THE TISSUE EQUIVALENT FACTOR OF THE PHANTOM MATERIAL CONSISTING OF 70PERCENT PARAFFIN AND 30PERCENT POLYETHYLENE. ON THE BASIS OF CALCULATION AND EXPERIMENTAL DATA THE AUTHOR CONCLUDES ON THE POSSIBILITY OF USING THE PROPOSED PHANTOM MATERIAL FOR THE MEASUREMENT OF DOSES OF QUANTUM RADIATION WITH AN EFFECTIVE ENERGY RANGING FROM 60 KEV TO 1.25 MEV WITH AN ERROR OF PLUS OR MINUS 10-15PERCENT. THE TECHNIQUE OF PREPARING THE PHANTOM MATERIAL IS DESCRIBED.

UNCLASSIFIED

1/2 007
TITLE--ROLE OF LIME AND FERTILIZERS IN INCREASING THE FERTILITY OF HIGH
MOOR PEAT SOILS -U-
AUTHOR-(02)-SKOROPANOV, S.G., BREZGUNOV, V.S.
COUNTRY OF INFO--USSR
SOURCE--VESTSI AKAD. NAVUK BELARUS, SSR, SER. SEL'SKAGASPAD. NAVUK 1970,
(1), 28-32
DATE PUBLISHED-----70
SUBJECT AREAS--AGRICULTURE
TOPIC TAGS--SOIL STRUCTURE, CEREAL CROP, LEGUME CROP, TRACE ELEMENT,
MINERAL FERTILIZER, CALCIUM COMPOUND, AGRICULTURE CROP YIELD
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605019/E02 STEP NO--UR/0530/70/000/001/0028/0032
CIRC ACCESSION NO--AP0140964
UNCLASSIFIED

2/2 007

CIRC ACCESSION NO--AP0140964
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. FIELD AND POT EXPTS. WERE CONDUCTED TO STUDY THE EFFECT OF CA, CU, B, MN, MO, CO, ZN, P, K, AND N ON THE YIELD OF RYE, BARLEY, OATS, CLOVER, AND VETCH GROWN ON PEAT SOILS OF THE HIGH MOOR. TREATMENT WITH N-P-K WITHOUT CA WAS INSUFFICIENT TO PRODUCE ANY CROP ON THIS TYPE OF SOIL, THOUGH N-P-K-CA GAVE REASONABLY HIGH YIELDS. THE APPLICATION OF THE TRACE MINERALS IN ADDN. TO N-P-K-CA WAS BENEFICIAL. FERTILIZER MIXTS. GIVING MAX. YIELDS OF THE VARIOUS CROPS ARE REPORTED.

UNCLASSIFIED

USSR

UDC: 621.391

ZADDE, G. O., SKOROSFELOV, G. A.

"On Describing Radio Communication Channels With Randomly Varying Parameters With Regard to the Polarization Structure of the Field"

Tr. Sib. Fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated With Tomsk University), 1970, vyp. 51, pp 278-281 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A30)

Translation: A communications channel is treated as a linear eight-pole network with randomly varying parameters as a basis for introducing a correlation matrix which characterizes the statistical properties of the channel. Relations between the polarization parameters of the signal at the input and output of the communications channel are written out in terms of the elements of this matrix. Separate consideration is given to the characteristics of a radar channel. Resumé.

1/1

- 47 -

USSR

UDC:621.039.548.343

SKOROV, D. M., DASHKOVSKIY, A. I., ZALUZHNYI, A. G. and STOROZHUK, O. M.,

"Installation for Study of the Kinetics of Separation of Gaseous Radioactive Fission Products from Irradiated Materials"

Moscow, Atomnaya Energiya, Vol 36, No 1, Jan 74, pp 76-77

Abstract: Recently, the study of the diffusion mobility of inert gases in reactor materials has been intensified, since neutron bombardment causes gaseous fission products to be formed in materials, causing such undesirable phenomena as radiation swelling and embrittlement. The authors suggest an installation for determination of the kinetics of liberation of radioactive gaseous fission products, eliminating the shortcomings of earlier installations (content of other volatile radioactive fission products in addition to inert gases in fuel specimens and the requirement for extremely high purity of helium to prevent oxidation of specimens, altering the kinetics of gas liberation from the specimen) by heating the specimen in a high vacuum with continuous oil-free evacuation of the working volume by high-vacuum pumps and prevention of entry of nongaseous fission products into the trap for inert gas collection.

1/1

- 46 -

USSR

UDC 539.219.3

ANAN'IN, V. M., GLADKOV, V. P., ZOTOV, V. S., and SKOROV, D. M.

"Diffusion of Nickel in Beryllium"

Moscow, Atomnaya Energiya, Vol 29, No 3, Sep 70, pp 220-221

Abstract: The authors studied the diffusion of nickel in beryllium and two Be-Ni alloys containing 10 and 36 wt. percent nickel. The study material was distilled beryllium remelted in an arc furnace on a water-cooled copper hearth. The specimens first underwent high-temperature homogenizing annealing, then diffusion annealing following the application of an Ni-63 isotope to one of their surfaces. Radiometric and autoradiographic analyses indicate that the mobility of nickel along the grain boundaries of beryllium is very low and cannot be detected against a background of volume diffusion.

1/1

- 27 -

Organ and Tissue Transplantation

USSR

UDC 575.24:578.083

KERKIS, YU. YA., and SKOROVA, S. V., Institute of Cytology and Genetics,
Novosibirsk, Siberian Department of the Academy of Sciences USSR

"The Mutagenic Effect of Immunological Stress Due to Tissue Incompatibility
in Mice"

Moscow, Genetika, Vol 7, No 11, 1971, pp 70-74

Abstract: The immunological stress developing after transplantation of
allogenic skin grafts (obtained from line AKR mice) increases the number
of bone marrow cells in the recipients (line A mice) with chromosomal abbera-
tions up to 15%, thus yielding up to 0.106 abnormal chromosomes per cell.
Only 0.049 abnormal chromosomes per cell are observed in controls (mice with
syngeneous skin grafts and intact mice). The maximum number of injuries occurs
on the 10th-15th days after transplantation, coinciding with rejection of the
allogenic transplants. It is believed that the disrupted intracellular
homeostasis, resulting from mobilization of immunological mechanisms against
foreign antigens, causes structural lesions in the chromosomes at the moment
of their replication or during other phases of the mitotic cycle.

1/1

USSR

UDC 547.341.26'118.07

LASKORIN, B. N., YAKSHIN, V. V., KREMNEVA, Ye. V., and SKOROVAROV, D. I.
"A Method of Making Monoethers of N-Substituted Thiocarbamoylphosphonic
Acids"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 5, Feb 71, Author's Certificate No 292987, Division C, filed 11 Oct 69,
published 15 Jan 71, p 101

Translation: This Author's Certificate introduces: 1. A method of making
monoethers of N-substituted thiocarbamoylphosphonic acids. As a distinguish-
ing feature of the patent, monosubstituted salts of monoalkylphosphites are
interacted with alkyl- or arylisothiocyanates in the presence of heat in
an organic solvent such as benzene, with subsequent treatment of the resul-
tant product in a mineral acid such as hydrochloric acid, and isolation of
the goal product by conventional methods. 2. A modification of this method
distinguished by the fact that the process is carried out in the presence
of a catalyst such as triethylamine.

1/1

USSR

UDC 547.341.26'118/07
NIFANT'YEV, E. YE., NASONOVSKIY, I. S., LAKKORIN, B. N., SKOROVAROV, D. I.,
SHATALOV, V. V., Moscow State University imeni M. V. Lomonosov

"A Method of Making Phosphinates"

Moscow, Otkrytiya, Izobreteniya, Primyshlennyye Obraztzy, Tovarnyye Znaki,
No 22, Aug 72, Author's Certificate No 345165, Div G, filed 23 Nov 70,
published 14 Jul 72, p 97

Translation: This Author's Certificate introduces: 1. A method of making phosphinates with the distinguishing feature that the process is simplified by reacting the sodium salt of phosphinic acid with an alkyl halides in an inert organic solvent such as methanol in the presence of heating with subsequent isolation of the goal product by conventional methods. 2. A modification of this procedure distinguished by the fact that heating is done to 130-135° C. 3. A modification of the method covered in points 1 and 2 distinguished by the fact that the process is carried out in the presence of a peroxide such as tert-butyl peroxide.

1/1

- 28 -

USSR

UDC 547.341.26'118.07

LASKORIN, B. N., YAKSHIN, V. V., KREMNEVA, Ye. V., and SKOROVAROV, D. I.

"A Method of Making Monoethers of N-Substituted α -Aminoalkylphosphonic Acids"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 5, Feb 71, Author's Certificate No 292986, Class G, filed 11 Oct 69,
published 15 Jan 71, p 101

Translation: This Author's Certificate introduces: 1. A method of making monoethers of N-substituted α -aminoalkylphosphonic acids by interacting phosphites with Schiff bases in the presence of heat with subsequent treatment of the resultant product in a mineral acid such as hydrochloric acid. As a distinguishing feature of the patent, the process is simplified by using monosubstituted ammonium, alkali or alkaline earth salts of monoalkylphosphites as the phosphite, and carrying out the process in the presence of a catalyst such as triethylamine. 2. A modification of this method distinguished by the fact that heating is done to a temperature of 110-120°C.

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- 18 -

USSR

UDC:542'61:541'69

LASKORIN B. N., ~~SKOROVAROV, D. I.~~, FEDOROVA, L. A., and
SHATALOV, V. V.

"Basic Regularities of Extraction of Uranium with Phosphine
Oxides"

Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 333-388

Abstract: The authors studied the influence of changes in the structure of radicals in mono-, di-, and polyphosphine oxides. The results showed that there is a general regularity of increasing extraction properties with the transition from triaryl to trialkyl and tricycloalkyl phosphine oxides. The removal of the electronegative substituent from the phosphorus atom causes an increase in the extraction properties of the phosphine oxides. However, the degree of this increase depends on the type of group introduced. The double bond in the alpha position in phosphine oxide radicals has a significant

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USSR

LASKORIN B. N., SKOROVAROV, D. I., FEDOROVA, L. A., and
SHATALOV, V. V., Moscow, Atomnaya Energiya, Vol 28, No 5, May
70, pp 383-388

influence on their extraction properties, decreasing the distribution factor. Further increases in the extraction properties can be achieved by increasing the number of phosphoryl groups in the molecule of the extraction agent. Comparison of the properties of phosphine oxides studied confirms the significant influence of the type of substituent radical (aromatic, alkyl, or alicyclic), then of its structure (benzyl greater than phenyl; octyl greater than cetyl; cyclohexyl-methyl less than cyclohexyl). It is also shown that an increase in the number of phosphoryl groups in the phosphine oxide molecule helps to improve the extraction of uranium; the length of the alkylene bridge between the atoms of phosphorus is one of the main factors determining the properties of polyphosphine oxides.

2/2

1/2 015
UNCLASSIFIED
TITLE--PRINCIPAL RULES FOR URANIUM, EXTRACTION BY PHOSPHINE OXIDES -U-
PROCESSING DATE--27NOV70
AUTHOR--(04)--LASKORIN, B.N., SKOROVAROV, D.I., FEDOROVA, L.A., SHATALOV,
V.V.
COUNTRY OF INFO--USSR
SOURCE--AT. ENERG. (USSR): 28: 383-8, MAY 1970
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--URANIUM, EXTRACTIVE METALLURGY, ORGANIC OXIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0564
STEP NO--UR/0089/70/028/000/0383/0388
CIRC ACCESSION NO--AP0137649
UNCLASSIFIED

2/2 015

CIRC ACCESSION NO--AP0137649
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--27NGV70

ABSTRACT. THE DEPENDENCE OF EXTRACTION OF URANIUM FROM HNO SUB3, HCL, AND H SUB2 SO SUB4 SOLUTIONS BY MONO, DI, AND POLYPHOSPHINE OXIDES OF DIFFERENT STRUCTURE WAS INVESTIGATED. THE LARGEST COEFFICIENTS OF DISTRIBUTION WERE OBSERVED AMONG TRI(ALKYL)PHOSPHINE OXIDES WHEN THE LENGTH OF CHAIN WAS C SUB8 MINUS C SUB10. TRI(ARYL)PHOSPHINE OXIDES WERE FOUND TO HAVE VERY POOR EXTRACTION PROPERTIES. THESE PROPERTIES FOR MIXED DERIVATIVES INCREASED FROM TRI(ARYL) YIELDS DIARYLALKYL YIELDS ARYLDIALKYL. TRI(CYCLOHEXYL)PHOSPHINE OXIDE HAS THE BEST EXTRACTION PROPERTIES. THE MAIN REGULARITIES OF EXTRACTION WERE INVESTIGATED ON TRI(OCTYL)PHOSPHINE OXIDES; COMPLEXES GENERATED WITH URANIUM SULFATE WERE DEFINED. TO DEFINE CHARACTERISTICS OF EXTRACTION PROPERTIES OF PHOSPHINE OXIDES INTERDEPENDENCE BETWEEN PHYSICAL PROPERTIES (VP EQUALS 0) AND DISTRIBUTION COEFFICIENT OF URANIUM WAS INVESTIGATED. THE INFLUENCE OF LENGTH ALKYLENE BRIDGE BETWEEN PHOSPHORUS ATOMS ON URANIUM EXTRACTION WAS INVESTIGATED FOR BIDENTATE PHOSPHINE OXIDES. IT WAS SHOWN THAT COMPOUNDS WITH ETHYLENE BRIDGE HAVE THE LARGEST EXTRACTION PROPERTIES.

UNCLASSIFIED

USSR

UDC 621.314.57(088.8)

SKORCVAROV, V.YE., PRIDATKOV, A.G. [Mosk.fiz.-tekhn. in-t--Moscow Physicotechnical
Institute]

"Method Of Regulation Of The Amplitude And Frequency Of The Output Voltage Of An
Autonomous Current Inverter"

USSR Author's Certificate No 259256, filed 9 Sept 66, published 24 Apr 70 (from
RZh--Elektronika i yeye primeneniya, No 12, December 1970, Abstract No 12B511F)

Translation: A method of regulation is proposed for the amplitude and frequency of
the output voltage of an autonomous current inverter, in which for an increase of
the stability and speed of response of the regulating processes, the control sig-
nals are synchronized in phase with the output voltage of the inverter and the
control pulses are regulated with respect to frequency. 4 ill. I.R.

1/1

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USSR

UDC: 681.32.001

MAYOROV, S. A., PETUKHOV, G. A., SKORUBSKIY, V. I., SOKOLOVA, N. S., CHESNOKOV, M. N.

"Problem of Arrangement of Structural Units When Planning and Designing Digital Devices"

Skaisiavimo technika, Vychisl. Tekhnika, T. 1 (Computer Engineering, Vol 1), Kaunas, 1970, pp 275-279 (from RZh-Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 9, Sep 70, Abstract No 9B200)

Translation: A generalized statement of the arrangement problem for devices of any level is presented by introducing the concept of the functional-structural unit and mounting space. The following steps in obtaining optimal arrangement are investigated: selection of the initial arrangement, optimization of the circuits connecting more than two contacts, processing the connection list, and improvement of the selected arrangement. The results of practical execution of the described problem on the Minsk-22 digital computer are presented. There is one illustration and a two-entry bibliography.

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USSR

UDC 628.1.034:628.175:628.3

SKORUPSKAS, I. M., YANONISA, YU., BELENAVICHYUS, K. K., KILUKAS, B. I. and
KLENGEVICHUTE, D. M.

"Study of the Sedimentation Rate of Suspended Particles in an Effluent"

Bum. prom-st' (Paper Industry), 1969, No 6, pp 15-16 (from RZh-Khimiya, No 1(II),
10 Jan 70, Abstract No 1 I 526)

Translation: Research on drawing up water, fiber, and kaolin balances was conducted at the Paper Factory imeni Yu. Yaponis. It was established that each hour it is necessary to purify ~ 535 cubic meters of effluent in which the concentration of GDP [expansion unknown] at individual stages of the process is as high as 3-4 grams/liter. Recommendations on purifying effluent using coagulating and flocculating additives are presented.

Resume

USSR

UDC 621.391.519.2

S
BINSHTOK, V. E., SKORUPSKAYA, L. P.

"Synthesis of a Signal which Maximizes the Signal/Noise Ratio at the Output of a Matched Filter"

Tr. Mosk. Elektrotekhn. in-ta svyazi (Works of Moscow Electrotechnical Communications Institute), 1970, vyp. 1, pp 6-9 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9A38)

Translation: The problem of synthesis of a signal insuring a maximum signal/noise ratio at the output of a matched filter is solved under the assumption that the noise is distributed uniformly with respect to range, and arbitrarily with respect to frequency. The problem is connected with reception of the signal from the target against a background of extended interference the intensity of which is much greater than the noise intensity. The bibliography has three entries.

1/1

1/2 009
TITLE--MODIFIED CELLULOSE -U- UNCLASSIFIED PROCESSING DATE--30OCT70
AUTHOR--(03)-YERMOLENKO, I.N., SKORYNINA, I.S., VOROBYEVA, N.K.
COUNTRY OF INFO--USSR
SOURCE--USSR, 261,376
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--13JAN70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--CELLULOSE RESIN, CHEMICAL PATENT, PHOSPHATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1447 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0128846
UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AA0128846
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. CELLULOSIC MATERIALS ARE MODIFIED BY TREATMENT WITH P CONTG. REAGENTS, E. G. CONDENSED ACID PHOSPHATES, COMPLEX PHOSPHATES, OR METAL POLYPHOSPHATES, IN THE PRESENCE OF N CONTG. COMPS. AT 140DEGREES. THE PRODUCT OBTAINED IS HEAT TREATED AT 140DEGREES AND A RESIDUAL PRESSURE OF 0.1 MM HG. FACILITY:
INSTITUTE OF GENERAL AND INORGANIC CHEMISTRY, ACADEMY OF SCIENCES,
BELORUSSIAN SSR.

UNCLASSIFIED

USSR

UDC 681.327.12

DENBNOVETSKIY, S. V., ZABOROVSKIY, YU. A., PETRENKO, A. I., SKRYNSKIY, N. YA.
"Method of Reading Two-Dimensional Graphs"

USSR Author's Certificate No 310274, filed 12 May 69, published 3 Sep 71 (from
RZh —Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 4, Apr 72,
Abstract No 4A525P)

Translation: A procedure is proposed for reading two-dimensional graphs by swinging the beam in a circular trajectory. In order to increase the reliability when reading the graphs with internal and external loops, the time interval of the tracking resolution is generated in each circular scanning cycle. This interval is centered symmetrically with respect to the reading direction, and on coincidence of the middle of the time interval of the resolution with the direction of reading, the center of the circular scan of the beam is advanced along the reading direction by one step. There are 2 illustrations.

1/1

- 49 -

UNCLASSIFIED
TITLE--INVESTIGATION OF THE ANOMALOUS RESISTANCE OF A PLASMA CURING
TURBULENT HEATING -U-
AUTHOR--KALININ, YU.G., KINGSEF, A.S., LIN, D.N., RYUKOV, V.M., SAKRYUPIN,
V.A.
COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKIY FIZIKI, 1970, VOL 58,
NO 1, PP 68-75
DATE PUBLISHED-----7C

SUBJECT AREAS--PHYSICS

TOPIC TAGS--TURBULENT HEATING, PLASMA PHYSICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAPE--1973/1070

STEP AC--UR/CC56/7C/058/C01/0068/C075

CIRC ACCESSION AC--APCC3EC25

UNCLASSIFIED

26
5
31

Acc. Nr: **AP0038029**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 1, pp 68-75

INVESTIGATION OF THE ANOMALOUS RESISTANCE OF A PLASMA
DURING TURBULENT HEATING

Yu. G. Kalinin, A. S. Kingsep, D. N. Lin, V. D. Ruzitskiy,
V. A. Skoryupin

The dependence of plasma resistance on initial conditions of the experiment during turbulent heating by a current is investigated. The plasma resistance decreases approximately as $n^{-1/2}$ with variation of the concentration between 10^{12} cm $^{-3}$ and 10^{14} cm $^{-3}$. The resistance does not depend on the magnitude of the confining magnetic field when the strength of the latter varies between 5 and 21 kOe. The ratio of the current velocity to the ion beam velocity is calculated on basis of the experimental results. It changes from 1.5 to 10 on variation of the concentration from 10^{12} cm $^{-3}$ to $5 \cdot 10^{13}$ cm $^{-3}$. The dependences obtained and turbulent heating are explained by assuming excitation of ion-acoustic instability in the plasma by a current.

REEL/FRA
19731070

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02

USSR

UDC 678:[539.612 539.4].001

SKORYY, I. A., and TEREKHOVA, L. P., Moscow Aviation Technological Institute

"Stresses in Cemented Joints of Cylindrical Shells and Panels"

Riga, Mekhanika Polimerov, No 6, Nov-Dec 72, pp 1093-1103

Abstract: The stresses in cemented joints of cylindrical shells and panels are determined, and an investigation is made of the effect of the length of the joint and the parameters of cement, shells, and panels on the magnitude of stresses. It is shown that stresses σ_0 and τ_0 are nonuniformly distributed along the cemented joint and concentrated at the edges of the joint. The stresses in the cement and the length of the zone of the boundary effect depend essentially on the modulus of elasticity of the cement. Thus for cement with the modulus of elasticity $E^*_c = 2 \cdot 10^5$ kgs/cm² the maximum stresses are 7.5 times higher than for cement with the modulus of elasticity $E^*_c = 2 \cdot 10^3$ kgs/cm², while the zone of concentration of stresses in them is equivalent to three-four thicknesses of shells or the entire length of the cemented joint, respectively. Variations of the length of the cemented joint for the same cement confirmed the fact that the zone of concentration of stresses does not depend on the length of the cemented layer. Maximum normal and tangential stresses in the cemented layer do not depend on the length of the cemented layer.

1/1

USSR

UDC: 621.375:621.376.22(088.8)

ZUBKOV, V. P., SKOSYREV, I. S., Scientific Research Institute of Direct Current

"An Amplifier of Modulated Oscillations"

USSR Author's Certificate No 258390, filed 5 Apr 68, published 19 May 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D132 P)

Translation: This Author's Certificate introduces a hybrid amplifier with voltage divider having high efficiency due to the fact that the tube is opened only when one of the resistors in the bias circuit is shunted with transmission of a trigger pulse to one of the amplifier inputs. The collector-emitter junction of a transistor does the shunting. H. S.

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- 4 -

USSR

ZUBKOV, V. P. and SKOSYREV, I. S.

UDC 621.375:621.376.22

Applicant: Scientific Research Institute of Direct Current.
"Modulated Oscillations Amplifier"

Moscow Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye
znaki, No 1, 1970, p 51. Author Certificate No 258390.

Abstract: An author certificate has been granted for an amplifier containing a radiotube and a voltage divider. To increase its efficiency, the control grid is connected between the resistors of the divider one element of which consists of a transistor (collector-emitter junction) shunted by a resistor. The input terminal of modulating voltage is connected to the transistors base, while the carrier frequency voltage terminal is connected to the screen grid of the tube.

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Acc. Nr.: AAC040519

Ref. Code: UR 0482

USSR

UDC 621.375:621.376.22 JPRS 50248

ZUBKOV, V. P. and SKOSYREV, I. S.

Applicant: Scientific Research Institute of Direct Current.
"Modulated Oscillations Amplifier"

Moscow Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye
zhaki, No 1, 1970, p 51. Author Certificate No 258390.

Abstract: An author certificate has been granted for an amplifier
containing a radiotube and a voltage divider. To increase its
efficiency, the control grid is connected between the resistors
of the divider one element of which consists of a transistor
(collector-emitter junction) shunted by a resistor. The input
terminal of modulating voltage is connected to the transistors base,
while the carrier frequency voltage terminal is connected to the
screen grid of the tube.

Reel/Frame
19750029

SKOSYREVA, V. D.

SPRS 56499 94
14 JULY 72

USE OF AN M-220 ELECTRONIC COMPUTER FOR AUTOMATIC PROCESSING
OF EXTERNAL RESPIRATION PARAMETERS

Article by V. A. Sustan'yan, R. I. Vukrov, N. D. Skosyrev
and E. R. Isakov; Moscow, Akademiya Voennoy Iskusstva
Biologiya i Meditsina (Current Problems in Space Biology and
Medicine), Moscow, 1971, pp. 230-237.

In investigating the functions of human external respiration in laboratory experiments in many cases there must be a routine evaluation of the state and adaptation of an emergency decision. Automation of decoding and computation of the complex of external respiration parameters using an electronic computer made it possible to solve this problem.

The proposed system for the automatic processing of the parameters of respiration will make it possible to determine the following parameters: inhalation volume V_I (ml), exhalation volume V_E (ml); duration of inhalation t_I (sec), exhalation t_E (sec); and respiratory cycle t_{cy} (sec); respiration rate f (breaths/min); O_2 consumption (STPD) $\dot{V}O_2$ (ml/min) and CO_2 release (STPD) $\dot{V}CO_2$ (ml/min); respiration coefficient $R = \dot{V}CO_2/\dot{V}O_2$. These parameters are computed for each respiratory cycle (inhalation-exhalation). On the basis of individual respiratory cycles it was possible to compute the mean values of these parameters in one minute.

The automatic processing system consists of a spirometer with a potentiometric output for registering the respiratory volume $V_T(t)$, ST-100 mass spectrometer for measuring the O_2 fraction $P_{O_2}(t)$ and CO_2 fraction $P_{CO_2}(t)$ during inhalation (I) and exhalation (E), a three-channel SM-41 magnetic recorder or used in registering the parameters V_I , P_{O_2} and $\dot{V}CO_2$ in the form of a continuous dependence of voltage on time, and an M-220 electronic computer. The input of data from the magnetic recorder into the electronic computer was accomplished

USSR

SKOTNIKOV, B. P.

UDC: 629.78.017.2

"Dynamics of Triaxial Orientation of a Space Vehicle"

Moscow, Upr. dvizhushchimisya ob'yektami. Tr. IV Vses. soveshch. po avtomat. upr. Tbilisi, 1968--sbornik (Control of Moving Objects. Works of the Fourth All-Union Conference on Automatic Control. Tbilisi, 1968--collection of papers), 1972, pp 59-72 (from RZh-Raketostroyeniye, No 10, Oct 72, abstract No 10.41.68)

Translation: The author analyzes the typical case of stabilization of a space vehicle with respect to three axes when motion about two axes of the vehicle may be considered independent, while motion about the third axis is dependent. The given case of forced oscillations may arise if the vehicle carries a data unit with two telescopes. One telescope barrel is directed along the axis of stabilization, and the other makes an angle other than a right angle with the first. The problem is solved on the assumption that the vehicle is equipped with an active orientation system, and that the actuating mechanisms operate in the pulse mode. The method of alignment and point approximations is used in solving the problem. It is shown that the

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- USER

SKOTNIKOV, B. P., Upr. dvizhushchimisya ob'yektami, Tr. IV Vses. soveshch. po avtomat. upr. Tbilisi, 1968--sbornik, 1972, pp 59-72 (from RZh-Raketo-stroyeniye, No 10, Oct 72, abstract No 10,41.68)

form of the oscillatory cycle depends on essential parameters and initial conditions. Under certain initial conditions there is no closed cycle and motion arises which is stable in the Poisson sense. Formulas are given which can be used to calculate the expenditure of reaction mass for the given case of orientation of a vehicle with respect to three axes. Seven illustrations. Résumé.

2/2

- 49 -

AP0048374

Abstracting Service;
INTERNAT. AEROSPACE ABST

Ref. Code:

5-76 480293

A70-24307 # S
vehicles (O sviazannom upravlenii orientatsiei kosmicheskikh apparatov). E. V. Gushus and B. P. Skotnikov. *Kosmicheskie issledovaniia*, vol. 8, Jan.-Feb. 1970, p. 59-70. 6 refs. In Russian.
Coupled control of the orientation of space vehicle being oriented with reference to three celestial bodies. It is assumed that two orientation sensors, the signals of which are fed to the actuating elements, are moving relative to the vehicle housing and that their position is controlled by a third sensor which is rigidly mounted on the vehicle. The problem of investigating plane vibrations is reduced to a dynamic third-order system with two relays and is solved by the method of point transformations. All the periodic motions existing in the system are found, and their stability and dependence on the system parameters are investigated.
A.B.K.

REEL/FRAME
19800082

12

USSR

UDC 629.7.063.7(088.8)

SKOTNIKOV, P. A., SALTAYS, E. A., SALUGIN, V. K., GRAYFER, N. P., ZAV'YALOV, V. I.
"Bypass Valve for Aircraft Engine Lubrication System"

USSR Authors' Certificate, Class B 64 d 33/00, F 16 k 5/00, No. 305104, Announced 3 February 1970, Published 10 September 1971 (from RZh-Aviatsionnyye i raketnyye dvigateli, No 4, Apr 72, Abstract No 4.34.66 P)

Translation: A bypass valve for an aircraft lubrication system according to Authors Certificate No. 295712 (see RZh-Aviatsionnyye i raketnyye dvigateli, 1971, 12.34.42) is patented but is distinguished by the fact that to reduce hydraulic resistance the cavity of the shut-off element is separated by a partition into two chambers, radial slits in which have opposite angular displacement relative to the corresponding slits in the overlapping bushing separated from the bimetallic spiral by a cylindrical screen. 2 ill., Resume.

USSR

UDC 669.017.1:539.56.001.5

ZIKEYEV, V. N., SKOTNIKOV, V. V., GULYAYEV, A. P., ABAKOV, V. T., and
YELIZAROV, B. I.

"Study of Properties of Types 18KhNMFA and 18KhN1MFA Commercially Produced Experimental Steels"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works],
No 77, Metallurgiya Press, 1970, pp 207-214

Translation: It is demonstrated that the production, rolling, and heat treatment of types 18KhNMFA and 18KhN1MFA steels under industrial conditions cause no difficulties.

The experimental steels are superior in mechanical properties to type 15KhGNTA steel, used for important parts of motor vehicle engines. They have high brittle rupture resistance and hardenability. 2 figures; 3 tables.

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USSR

SKOTNIKOV, V. YA., and CHERKASOV, YE. P.

UDC 531.787.7

"Pressure Transducer With Digital Output"

USSR Authors' Certificate No 297871, Cl. G 01 s 23/00, filed 21 Dec 69, published
24 May 71 (From RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1,
Jan 72, Abstract No 1A380P)

Translation: The proposed pressure transducer with digital output contains a measuring unit in the form of a differential pressure relay, one cavity of which is connected to the input channel and the first valve input, the other cavity to the second valve input, while the output of the pressure relay is connected to the valve control chamber and a pulse counter. To increase accuracy, it contains supplementary measuring units connected to the input channel in parallel with the principal unit, with their pulse counters connected in series to one another by reading clearance channels and with W-fold increase in the range of measurement.

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1/2 027

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TITLE--MEAN RESIDENCE TIME OF RADIOACTIVE AEROSOLS IN THE UPPER LAYERS OF
THE ATMOSPHERE BASED ON FALLOUT OF HIGH ALTITUDE TRACERS -U-
AUTHOR--(04)--LEIPUNSKIY, D.I., KONSTANTINOV, I.E., FEDOROV, G.A.,
SKOTNIKOVA, O.G.

COUNTRY OF INFO--USSR

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ABSTRACT. THE CONCNS. OF PRIME109 CD IN
FALLOUT AND IN SURFACE AIR AT OBSERVATION POINTS IN THE SOVIET UNION
DURING 1964-7 ARE SUMMARIZED. ANAL. OF THESE DATA AND THEIR COMPARISON
WITH RESULTS FROM EXPTS. ON PRIME102 RH SUGGEST THAT THE MEAN RESIDENCE
TIME OF FINELY DIVIDED AEROSOLS IN THE ATM. ABOVE 21 KM FROM SOURCES
ABOVE 100 KM IS 14 YR. ANAL. OF THE PRIME238 PU FALLOUT DATA INDICATES
THAT THE MEAN RESIDENCE TIME OF AEROSOLS INJECTED AT SIMILAR TO 40-60 KM
ALTITUDE IS SIGNIFICANTLY LOWER, POSSIBLY SIMILAR TO 4 YR.

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UDC 66.074.7:539.173.8

VDOVENKO, M., KRIVOKHATSKIY, A. S., and SKOVORODKIN, N. V.

"An Analytical Method of Group Separation of Mixtures of Fission Products in the Presence of Carriers on Cation-Exchange Resins"

Leningrad, Radiokhimiya, Vol XIII, No 3, 1971, pp 416-421

Abstract: In investigating the composition of radioactive fission products, separation into groups is often the first stage of analysis, for it facilitates further separation, decontamination of individual elements, and ultimate analysis with β - and γ -spectrometers. But the numerous separation methods in use do not take into sufficient account the effect of the concentrations of separated elements or of impurities, for the individual case. The proposed group method, based on that of W. G. MATHERS, involves separation into 5 indicator quantities, on Dowar-50x8 cation exchange resin, for Zr, Ce, Cs, Sr, Co and Ru, with use of columns and various elutriators. The method allows separation into six fractions: 1) Ru, Mo, Zr, Nb, Sb -- and possibly Gd and Pd, 2) Cs and Rb (but partially Sb), 3) Sr and Ba, 4) Zr, 5) transuranium elements, and partly rare-earth elements heavier than Gd and Yt, and 6) rare-earth elements. Separation is very precise, 1/2